

7666. [Note-books, 1867-1902.]

26 note and sketch books ($6 \times 3\frac{1}{2}$ to $9\frac{1}{2} \times 7\frac{1}{2}$ in.,

in the original covers), now lettered chronologically.

a-z. Classified contents:

Biology, 1867-70: (*a*) Diatomaceae—beginning as 'Latin prose', (*c*) Entozoa.

Notes as student, 1869-74, from lectures and clinics (*b*) in Toronto, (*d-h*) in Montreal by Howard, Fenwick, D. MacCallum, and Drake, (*i-k*) in London by Burdon Sanderson, Klein, Sir Wm. Jenner, Wilson Fox, and Ringer, and (*l*) in Berlin and Vienna (see also no. 7668, 'Vol. 1') by Hebra and Widerhofer.

Teaching, medical reading and writings, 1874-82 (*n, r, t*); 1897-1902 (*y*), records of his 3rd year clinic, Baltimore, mostly written by Dr. T. McCrae.

Drawings, 1873-90 (*m, e, g, v, x*).

Election as physician to the Montreal General Hospital, 1878: governors canvassed (*p*).

Studies on the brain (*s*).

Endocarditis, 1885 (*u*—cf. no. 3539).

Malaria and dysentery—plasmodia and amoebae, 1886-90 (*v, w, x*).

Lecture portfolio (*z*), containing the roll of his pupils, &c., 1883-4, with the following note (written after 1914): 'For the first few years I wrote out and read my lectures. I am sorry no copy has been kept; I destroyed them all on leaving Montreal. Then I got into the habit of lecturing from slips, two of which are here preserved, one on the skin, and one on glycogen'.

Mr. Osler

Mini Coll

Toronto

2/10/17

Latin Prose Composition

FROM
THE LIBRARY
OF
SIR WILLIAM OSLER, BART.
OXFORD

7666 a

(1) Freshers!! Proposition.

It is said by the ancient poets that there are in the ocean certain islands to which the souls who have led a holy and religious life are borne after their death, that there they dwell most delightfully and pleasantly in a most beautiful meadow which is enamelled with perpetual flowers, that the sun is ever bright in that happy region, the trees green, the flowers and herbs in bloom, that there all nature smiles and the gentlest Zephyrs perpetually breathe by whose fanning the leaves of the trees are softly stirred and delight the ear with the softest murmurs.

Very Good indeed my boy - (2)

(1)

Traditum est a veteribus poetis esse quaedam
in oceanus insulas, a quas post mortem deferantur
communiui qui sancte religioseque vixerint. Hi
eos inter se jucundissimac navissimè vivere, in
amenuissimo quodam prato, quod perpetuis floribus
distinctum sit, nunquam non illic intare celum,
pondere arbores, pubescere herbas, videre omnia,
spirare assidue, mollissimos favonios, quorum
flabellis arborum comae leniter velitate plac-
idissimo mummure auribus blandiantur

R. Soler

(2)

I have received your three letters, but in the last there
were some parts so carelessly written that it is as plain
you were thinking of something else when you wrote it.
I will show you ~~these~~ faults when I come to your part of
the work and pull your ear that you may be for
the future more attentive when you write and avoid
at least such blunders, as even little boys would
avoid who are learning their accidence. Do not how-
ever be distressed by this admonition of mine for I
do not wish to take away anything by it from your
cheerfulness but to ~~draw~~ something to your attention
adieu

Toronto 30th October

(2)

Accepi tuas literas, in postremis autem suadent
orant ita negligenter scripta, ut facile constaret, aliud
egrosse te, quam illa scriberes. Solendam ea tibi,
quam istuc venens et aunculam pervellam tibi,
ut postea in scribendo allevior sis, ut saltem eos
solacii effugas, quos offugerunt etiam patuli,
qui primis literis intuentur. Noli tamen ex hac
mea admonitione molestam ullam capere. Non
~~nam~~ volo quidquam de tua hilaritate detrahi, sed
ad diligentiam addi.

Vale. Apud Torontouenses

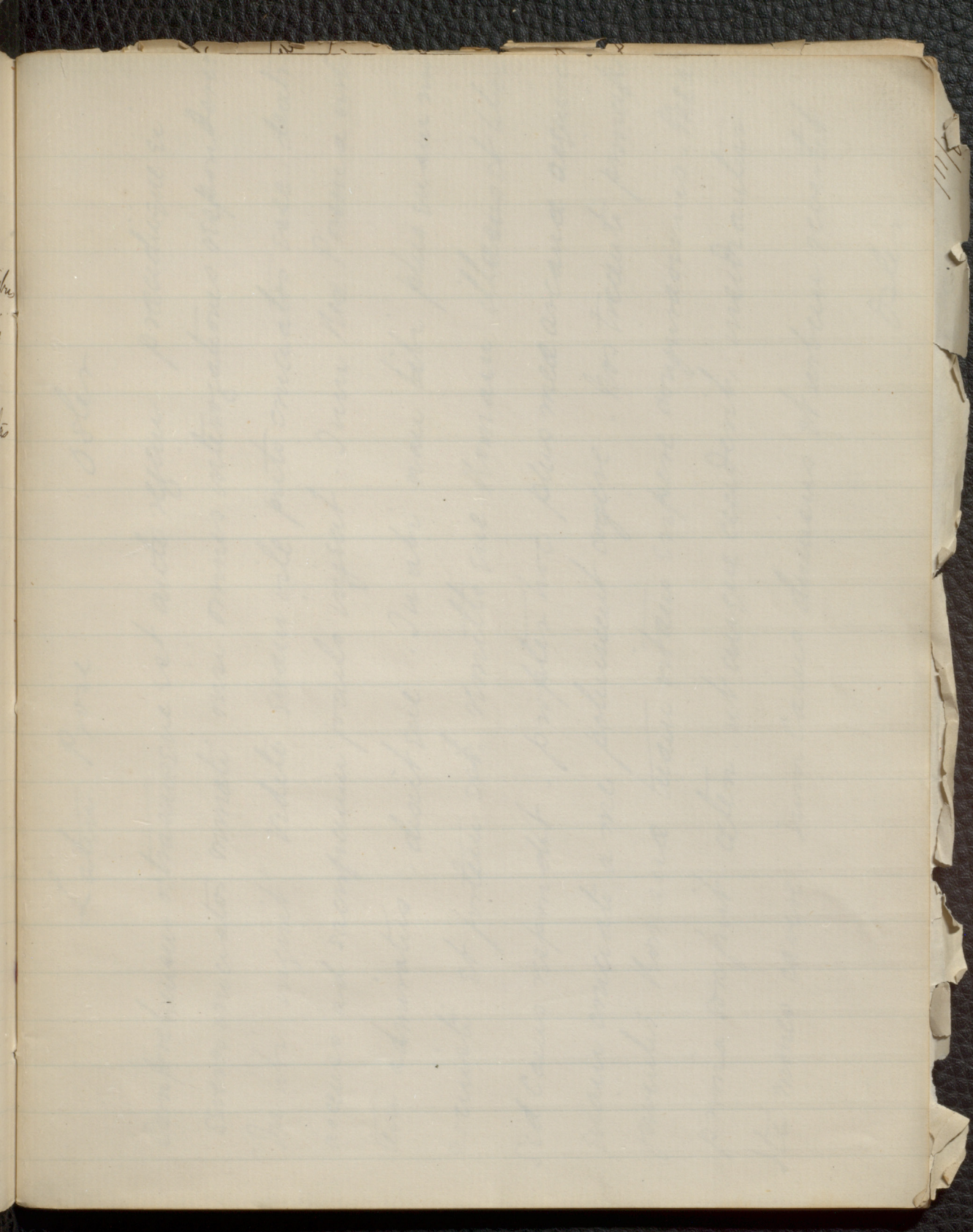
Scribam a. d. III Kal. Nov.

(3)

Your letter gave me much pleasure as everything
does that proceeds from you, although you had comm-
itted many faults in it (multa peccare) but as hearing
children are listened to with delight by fathers and
even their very mistakes are a pleasure to them (balbul-
eules) so this your infancy of letter writing is a plea-
sure to me I send you it back directed by my own hand
for so you know we agreed

(3)

Dulces utero tua ut omnia quae a te profiscus-
cuntur, etiam in eis multa peccaveras. Sed ut
pueruli balbucientes libenter audiantur a patribus
Sunt quae eorum etiam ipsi mores voluptati; sic
mihi ista tua in utero infanciam ducundissimam
est. Has ipsas ad te remitto mea manu imbutas
sic enim ita inter nos convenisse



Butterflies are not common and a few are seen
mostly the ones with the prominent black
spots on the hindwings. One of the most common is a
small one with a white spot on the hindwing.
The most common is the one with the white
spot on the hindwing. The most common is the one
with the white spot on the hindwing. The most common
is the one with the white spot on the hindwing.

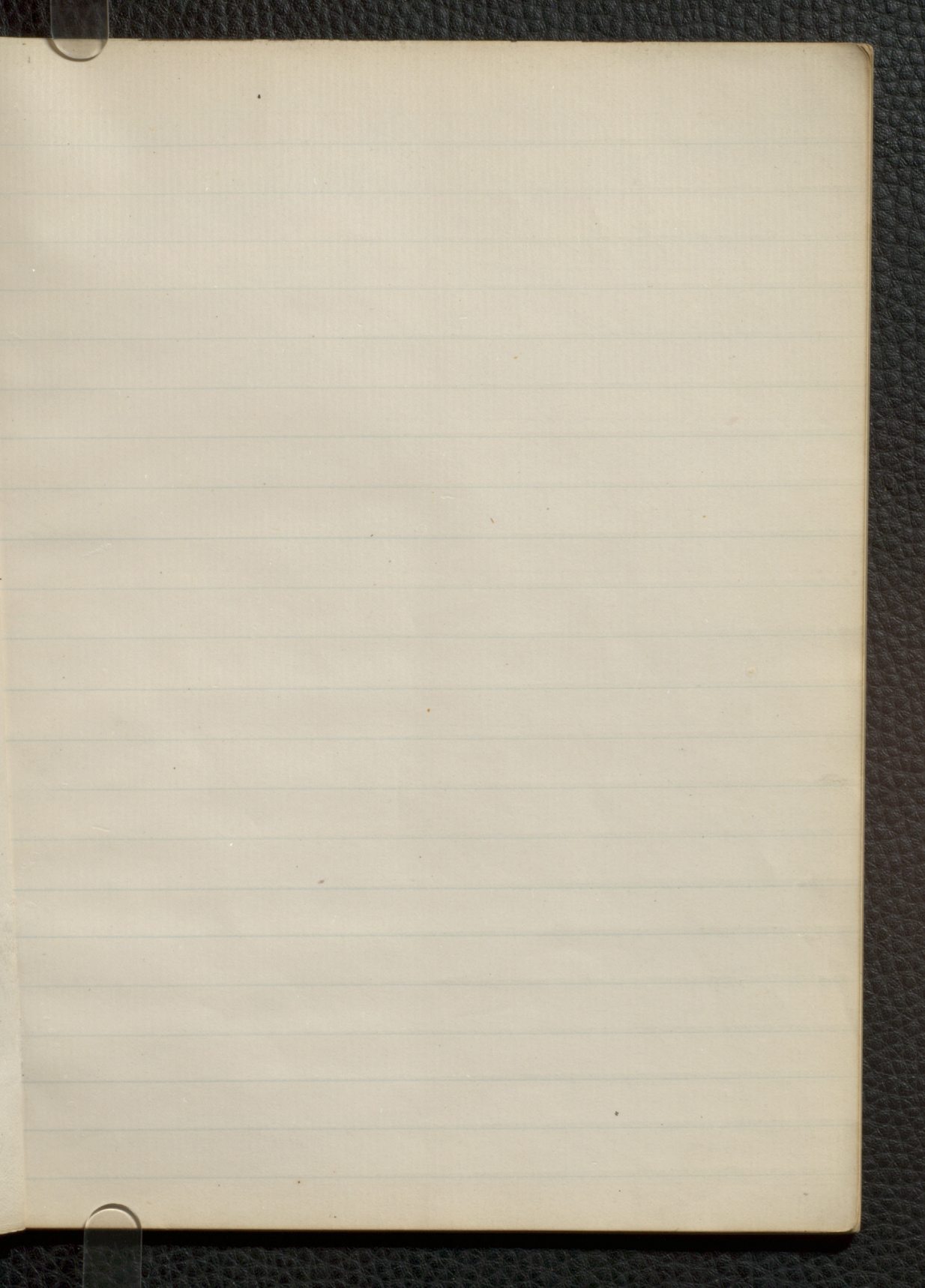
Latine Prose Oler

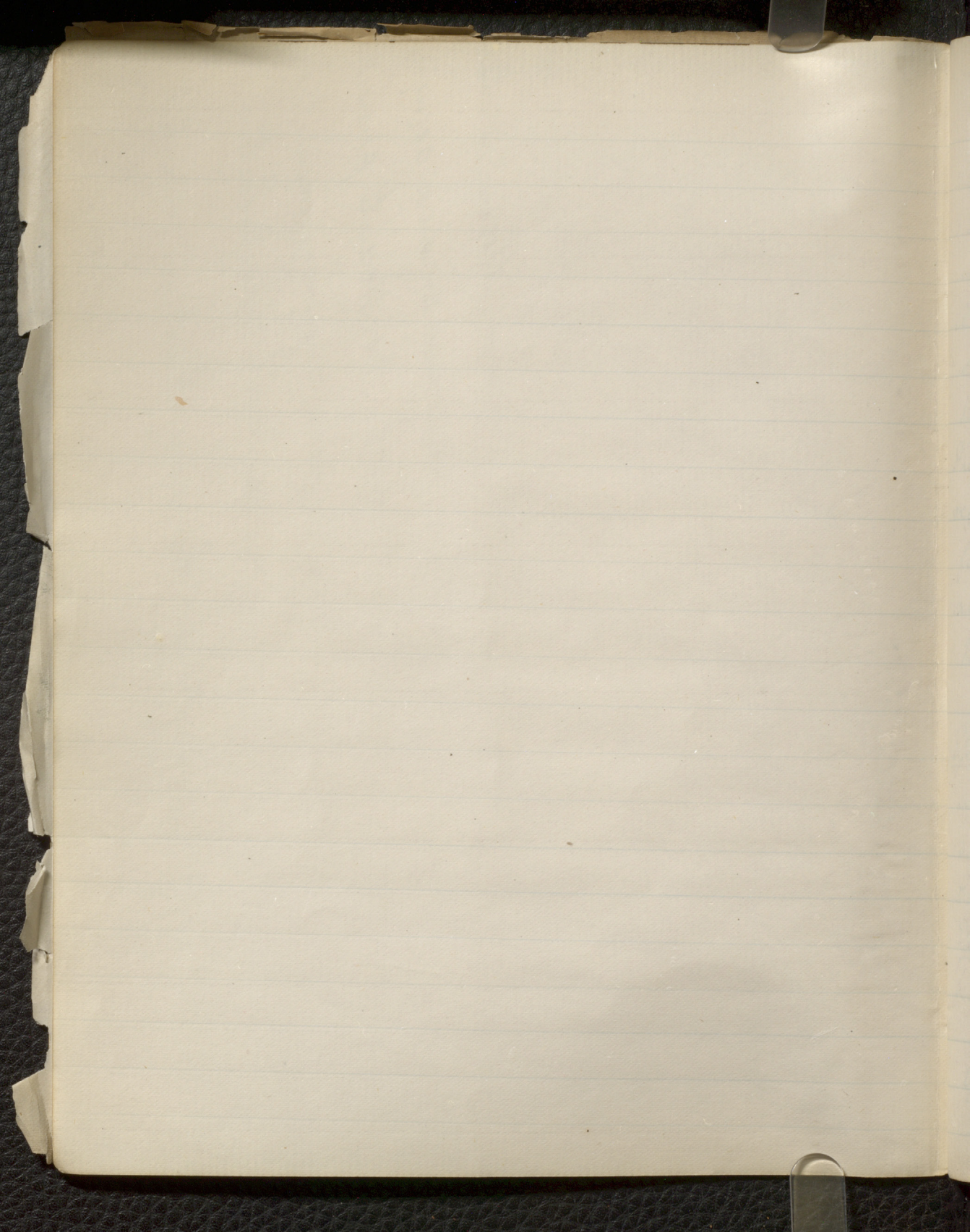
Comprehensus intravisse est aucto regem. praevidique ei
Sexto cruciatus imitati nisi omnes interrogatus responderet
"In h'c inquit" videte suam vile puto cruciatus esse. deatra
accuss ad sacrificium paulo injecit. Iam Rex Posena vultu
teu admiratus, dicitque. In abi nam tibi plus suam mu-
nificenti et fortiori est, rimettoque Romanu illius et liber

Sed Caius respondit. propter hoc plus mea arcana acquies-
ciam cruciati a me potuissent cogere. Nos trecenti principes
parentis Romanus tuam vitam impere congruavimus. Mea
prima dux fuit alieni. ut cuiusque ceciderit, insidiantur
ita mones cavere. Iam Caius diuinus et urbem reventit

Oler

12/11/18





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Genus I *Epithemia*, Kütz

Gnathopods adherent, quadrilateral; valves arcuate, furnished with transverse canaliculi.

A section of the gnathopod of the present genus would present an outline of a rounded form, either elliptical or quadrilateral or that of two nearly perfect circles united by an oblong isthmus. The transverse costa, so conspicuous in some species I (Mr Smith) regard as minute canals which convey the nutritive fluid to the surface of the internal membrane. Conjugation and the formation of sporangia have been noticed in this genus.

Epithemia turgida Sm. F.V. somewhat inflated. V. slightly arched, extremities suddenly attenuate, obtuse; striae ononilliform, canaliculi distinct. Humber Bay, Gren Pond.

Epithemia granulata Kütz. F.V. linear. V. slightly arched linear otherwise like *E. turgida*. Grenadier Pond, Humber Bay.

Epithemia Zebra. V. equally arched F.V. linear striae punctate
Drejudin Canal 13/7/69

Epithemia gibba F.V. linear slightly inflated at centre and
extremities S.V. linear, obtuse. Syn. Nav. gibba, Ep. gibba Dumet. gibba
Grenad Pond. Desjardin Canal

Epithemia ventricosa. F.V. elliptical slightly constricted at
the ends. V. with acute extremities. 1

Desjardin Canal 18/7/69

Epithemia Argus. F. resembling *E.ebra*, foramina conspicuous
on F.V. Burlington Bay

Epithemia ocellata. F.V. inflated extremities of valves rounded
foramina large

Grenadier Pond

Epithemia sorax F.V. inflated. V. alternate, slightly recurved
at the extremities dorsal line highly arcuate caudiculi few
Grenadier Pond

Epithemia proboscidea F.V. inflated V. recurved at extremities
caudiculi large foramina inconspicuous. Sandy Cove

Genus II *Eumotia*, Ehr.

Frustules free, oblong; valves arcuate with terminal nodules and convergent stria

Closely allied to former genus but easily distinguished by absence of canaliculi the delicacy of the stria and the dorsal ridges with which most of the species are provided. The F.V. is also uniformly linear and the connecting membrane less fully developed than in *Epithemia*

Eumotia arcus. V. regularly arcuate, acute with a slight constriction at each extremity, and inflation in the centre of the concave margin. striae delicate

Syn. Name arcus, Cyrtobella arcus

Humber Bay

Eumotia tetradon V. with four dorsal ridges

Desjardins Canal

Genus 3. *Cymbella*, Ag.

Frustules free, cymbiform, valves striated with a submedian line and central and terminal nodules

Many frustules of *Gloconocnata* detached from their stipes bear so close a resemblance to those of the *Cymbella* that a discrimination can hardly be relied upon which depends upon the observation of prepared specimens. *Cymbella* frequently form a more or less distinct stratum the frustules being retained in their position by a delicate pellicle of mucous matter.

Cymbella Ehrenbergii, Kütz. V. Elliptical-lanceolate, extremities slightly ~~protruded~~ deduced, obtuse and distinct
Grand Pond

Circulation noticed on this 26/9/19

Cymbella maculata. Larger segment of V. convex, smaller with slight inflation in centre extremities obtuse
Magara Falls

Cymbella Scolica. V. narrow elongated. smaller segment straight, extremities acute
Grand Pond & rare

Genus 4. *Amphora*, Ehr.

Instates free or adherent; valves cymbiform, with a central marginal nodule

The valves of this genus are exceedingly convex, closely resembling those of *Epithemia impetris* and the section of the pinctule is the same, they are at first adherent and afterwards free

Amphora ovalis Kutz. ♀. V. elliptical, internal margin of valve inflated at the nodule. Stria moniliform
Sandy cover Lake Simcoe

Amphora minutissima. ♀. V. elliptical or oval. V marked with a transverse band. Sunk in Boat Mouth of Huron. (rare)

Journal of the

Geological Survey of the

United States

Geological Survey of the

United States

Genus 5 *Cocconeis* Ehr

Frustules adherent; disciform, valves elliptical, plane,
with a median line and central nodule

In this genus the frustules are closely adherent by
the surface of one valve to larger Algae and are hard to get
off. The markings of the lower are less intense than
those of the upper surface

Cocconeis Shwailessii, Sm. 7. arched. valve constricted
towards the obtuse extremities, median line sigmoid
disc faintly striated (*Gymibella flexella* Kütz) (*Achnanthes* *drum*
flexillum, Breb). Grenadier Pond, Humber Bay

Cocconeis pediculus. 7. arched. V. elliptical. somewhat angular
disc delicately striated. Humber river on *Cladophora*. Desjardins
Canal on *Zygnum*

James C. Brown

Trusted and valued friend,
I have the honor to acknowledge the receipt of your letter of the 10th inst. and in reply to inform you that the same has been forwarded to the proper authorities for their consideration. I am, Sir, very respectfully,
Yours, &c.

James C. Brown
I have the honor to acknowledge the receipt of your letter of the 10th inst. and in reply to inform you that the same has been forwarded to the proper authorities for their consideration. I am, Sir, very respectfully,
Yours, &c.

James C. Brown
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Yours, &c.

Genus 6. *Coscinodiscus*, Ehr

Crustacea free or adherent, disciform, valves plane or slightly convex with a cellular structure

Though this genus is closely related to those which immediately follow it, it finds its nearest allies in the Melosirae, whose genera from their filamentous character stand widely apart in the present work.

Genus 7. Eupodiscus Ehr. (all marine)

Genus 8. actinocyclus Ehr. (marine)

Genus 9. Arachnoidiscus. Bail (marine)

Genus 10 *Inceratium* Ehr

Frustules free or attached, triangular, valves cellular
angles elevated or produced

The triangular form of the frustules separates this genus
from its allies. The frustules are probably first attached
to the larger algae

Genus 11. *Cyclotella* Kütz

Frustules free or adherent, disciform. valves convex or plane. striated, striae rayed

Closely allied to the *Coscinodiscus* and *Melosira*. the absence of cellular structure separating it from the first. the shallow valve and non adherent frustule from the second

Cyclotella Kutzingiana. V. undulating (not in some) striae delicate extending over half the disc.

London. University Pond Toronto. Burlington Bay. London in myriads in River ^{24/4/69}

13/6/69

Orthosira. Spinosa. side view. V.D. I must hold

Cyclotella? A Diatom found in Burlington Bay attached to some water weeds, looked very much like *C. Botula* ^{with} but the valve ~~was~~ depressed while in *Botula* it is plane, striae distinct & numerous. and the margins ~~are~~ spinous ^{making} and it looked like *Coscinodiscus recenticus*

Cyclotella operculata. V. depressed in centre striae obscure, very short. Burlington Bay. Humber Bay

Cyclotella rotula. Desjardins Canal

Genus 12. *Campylodiscus*
Frustules free, saddle shaped, valves equidistant, canaliculi radiated

The species included under this genus may all be recognized by the characteristic bend or contortion of their surface

Campylodiscus spiralis. 7. Twisted so as to present a spiral outline. V. elliptical, canaliculi about 60 nearly parallel, centre of disc immutably punctate

Sunken Boat. Mouth of Humber, full of pseudochrome and forming sporangia 8/9/69

Genus 13 *Survirella*. Surp

Testules free, ovate or elliptical, valves with ^a longitudinal central line, and margins produced into ala; caudiculi distinct usually parallel

The only genus with which the present stands in near alliance is *Dryblionella* from which it is well distinguished by the prominence of its ala, the distinctness of its caudiculi and the usual cuneate form of its testules. The surface of the valve in the *Survirella* is marked with transverse lines, but they are generally very faint

Survirella splendida, Kutz. f. V. ovate, V. ovate, elongated ala distinct; caudiculi conspicuous reaching the central line. Sandy Cove, L. Simcoe. Seneca Pond May 4th 1860
In a fine specimen of this from Niagara falls marmoring was distinctly observed 11/9/90

Survirella nobilis. V. linear-ovate, caudiculi conspicuous not reaching to the central line. Sandy Cove, L. Simcoe

Survirella pinnata V. linear-ovate, ala obsolete, caudiculi large, subdistinct, marginal, Niagara falls

Survrella Craticula V. lanceolate, also distinct, canaliculi few, small, divergent, reaching the median line
Burlington Bay. Sandy Cove

Survrella constricta Fl. linear, oblong, V. elliptical, acute usually with a central constriction, also conspicuous canaliculi delicate reaching to central margin which is often inflated

This species is smaller than the one figured by Smith
Humber Bay Green Pond 21/9/69

Survrella minuta, V. ovate-elliptical, also inconspicuous, canaliculi marginal, University Pond numerous, small stream West. W. A. I.

Survrella bisemata Fl. linear, oblong, V. elliptical-lanceolate, also conspicuous, canaliculi large, usually reaching the central line
Humber Bay

Genus 14. *Tryblionella* W. S.

Instules free, elliptical or linear, valves plane, also submarginal or obsolete, canaliculi inconspicuous^{or} parallel

This genus differs from *Campylodiscus* in the more elongated form of its instules and in the absence of the characteristic bend of its valves, the canaliculi are also more minute and parallel rather than radiating. It agrees with the *Sunrella* in the presence of alae, but these arise from the disc and ^{are} not as in the *Sunrella* prolongations of the margin, and the instules never assume the cuneate form so notable in the *Sunrella*.

Tryblionella angusta. V. linear, acuminate, canaliculi obscure since delicate and continuous. Niagara falls 18/8/69

~~*Tryblionella scutellum*. V. elliptical, marked with a central depressed line, canaliculi obsolete, also short~~
~~Brookington Bay. a *Sunrella*~~

Genus 13. *Cymatopleura*, W.S.

Instules free, oblong or elliptical, valves undulating

The undulations of the surface of the valves separate the present genus from both the last, the absence of aæ and canaliculi are further distinctions

Cymatopleura Solea W.S. F.V. oblong, linear, V. fiddle shaped, symmetrically divided by a central sinus on each side margin, undulations six surface of. sinuated
In number common

Cymatopleura elliptica V broadly elliptical, somewhat acuminate with four or five undulations. surface obscurely sinuated. (*Purcella elliptica*) Sandy Cove L. Lincoln

Cymatopleura apicula V fiddle shaped, apiculated. undulations about four

In numbers with *C. Solea* probably same species only much smaller

Genus 16 Nitzschia, Hass

Frustules free elongated compressed, valves linear, Keel with one or more longitudinal lines of puncta. Keel frequently eccentric

This genus embraces a large number of species differing in form and size but all agreeing in a few general characters. The most important of these is the Keel form of the valves and the remarkable inequality in many of the species, between the portions of the valve lying on either side of this prominence. This inequality or in other words ^{that} eccentricity of the Keel distinguished Nitzschia from Amphiprora in which the Keel is also present ~~but~~ the true character of the valve may be detected by a careful examination of the desiccated frustule

Section I frustules sigmoid

Nitzschia sigmoides, W.S. 7 linear sigmoid truncated, 1/2 linear suddenly tapering towards the acute extremities, Keel with a single line of puncta

Sandy Cove. L. Suirac

Putzschia tenuis 7-8 linear, occasionally slightly sigmoid
extremities truncate, or narrow lanceolate, acute; striae
obscure
Drillia wharf

Section IV

Putzschia amphioxys 7-8 linear, quadrangular
or elliptical, arcuate, with acute and somewhat
prominent extremities. Burlington Bay, Island Pond

Putzschia minutissima 4 linear: puncta distinct
with prominent & acute extremities; striae obscure
Guadalupe Pond, Monroville

Nitzschia acicularis F.v. lanceolate extremities produced
leaves straight F. faintly striated
Mazara falls. near Clifton House

~~*Nitzschia birostrata* F.v. elongated straight in central portion
somewhat lanceolate extremities produced into extremely long leaves
Keel near central, puncta in single row line obscure
Stamken Boat mouth of river 3/8/69~~

Genus 17 Amphiprora, Ehr

Amelules free, elliptical, constricted. valves convex, Keel central with a longitudinal line and nodules at centre and extremities

The very peculiar praelules of this genus cannot be confounded with any others, save with those of the fifth section of *Mitzychia* and from these they are usually distinguished without much difficulty, owing to their deeper constriction the central position of the keel

Amphiprora . V. hirsuta. 70 elliptical with round or truncate extremities. constriction not very deep & sinuate. The species here described differs from *Paladorea* in being narrower, less constricted & in having the stria continued to the keel but not branching from the margins. Srenader Pond. very rare

Genus 18 Amphipleura

Frustules free, linear, v. with longitudinal ridges

The structure of this genus is very obscure

Amphipleura pellucida Frustules linear-lanceolate
Senader Pond a rather made 15/9/69 not common

Genus 19. *Navicula* Bory,

Frustules free oblong or lanceolate; valves convex with a median longitudinal line nodules at centre and extremity striae spaced & resolvable into circular dots

In the present work the genus *Navicula* of Kutzing is divided into three viz. *Navicula*, *Pinnularia*, and *Pleurosigma*. *Stauroneis* has already been placed apart.

The four genera are thus sufficiently distinguished from each other; *Navicula* by the delicacy of its stria and their mould form character, *Pinnularia* by the confluent nature of the cellular structure of its epiderm which gives to its stria the appearance of distinct ribs. *Stauroneis* by the absence of a central nodule which is supplied by a band of silica crossing the valve at right angles to the median line; and *Pleurosigma* by the characteristic curve of its beautiful frustules.

Section I valves lanceolate

Navicula cuspidata, v. acute; striae parallel distinct
Sandy core L. S. mucosae

Navicula lanceolata. V. lanceolate or elliptical-lanceolate
striae parallel
Grenadier Pond. Hum Bay

Navicula rhomboides. V. nearly quadrangular striae
very faint parallel. Gru Pond.

Navicula crassivenia V. elliptical-lanceolate. extremities
produced striae obscure. Humbler River

Section II. Valves elliptical extremities rounded
~~*Navicula* 7. V. oblong. V. elliptical with rounded extremities
striae delicate Grenadier Pond. Hum Bay~~

Navicula elliptica V. elliptical striae distinct, interrupted
towards the central line

Navicula ovalis. Elliptical, occasionally inflated
Stria distinct, interrupted
Thames London

Section III Valves elliptical extremities acute

Section IV Valves inflated extremities rounded
Navicula affinis. v. elliptical; contracted, linear towards
the rounded extremities

Sandy Cove. Grenadier Pond common

Section V Valves with extremities produced

Navicula amphigynchos. Linear abruptly contracted
towards the produced extremities strong faint

Grenadier Pond Ann. Bay

Navicula producta. v. elliptical ^{abruptly} ~~gradually~~ contracted towards the
produced extremities. Sandy cove. L. Smicoe

Navicula ambigua. elliptical gradually
contracted towards the obtuse extremities which
are produced, stria distinct

Grindner Pond

Navicula tumida. Northern railway wharf

Navicula amphibia. Magma Falls

Navicula spirophora. Clifton. The Falls

Section VI valves with central constriction

Navicula binodis

V. constricted in centre, extremities

slightly produced, stria obscure

Kempsey Bay, common

Genus 20 Pinnularia Ehr

Frustules free, oblong or lanceolate, valves convex with a median line, and nodules at centre and extremities ribbed or pinnated with distinct costa not resolvable into dots

Pinnularia major V linear obtuse with a central and terminal inflation, costa radiate not reaching the median line, contiguous

Sandy cove. L Simcoe

Pinnularia gibba V linear with central and terminal inflations, costa not reaching the central line contiguous (*Navicula acrospheana*) Kütz

Grenadier Pond Huron Bay

Pinnularia stauroniformis V elliptical, costa absent from centre of valve not reaching the central line, contiguous Huron Bay

Pinnularia nobilis V linear, obtuse, with central and terminal inflation, costa radiate not reaching the median line contiguous Huron Bay. Dundas Canal

Pinnularia acuta & lanceolate, acute, costa radiate
reaching the central line

Sanders Farm London 25/4/09

Pinnularia acuminata. & linear suddenly acuminate
toward the extremities costa parallel not
reaching the central line

London Sanders Farm 25/4/09

Pinnularia mesolepta. & linear with three central
inflations, deeply constricted toward the obtuse
extremities, costa reaching the central line

Pinnularia viridis & elliptical, attenuated,
costae as in *P. major*

Very common Niagara falls. Humber Ponds

Pinnularia oblonga. & lanceolate extremities rounded costa
radiate, reaching central line distinct

Humber Bay, Dundas, Ponds stream

Pinnularia gibbs & linear with central and terminal
inflations, costa not reaching central line

Don River.

Pinnularia acrospora. V linear with central & terminal
inflations, costa not reaching the central line, contiguous
Guadalupe Ponds

Pinnularia brevis. V linear. V contracted toward
the extremities & expanded into rounded heads
See Myc Journal Oct. 1855. W. Gregory. Sandy Cove

Genus 21 *Stauroneis* Ehr

Frustules free, oblong or lanceolate valves convex striated with a median line and terminal nodules, central nodule dilated into a band (stauros) free from striae

Stauroneis Phaeocenteron. V. lanceolate, obtuse, stauros linear reaching the margin

Grenadier Pond Humbert Bay

Stauroneis acuta F.V. oblong V. lanceolate, acute, inflexed at extremities, stauros dilated toward the margin of valve
Sandy Cove. L. Smcoc. Grenadier Pond

Stauroneis dilatata V. elliptical, extremities slightly produced
stauros linear not reaching the margin

Desjardins Bridge Barb Bay

Stauroneis gracilis. V. lanceolate, obtuse, stauros linear scarcely reaching the margin striae very delicate
Grenadier Pond

Stauroneis punctata, v. elliptical, extremities produced
stauron linear central striae radiate punctate
Prenadier Pond

Stauroneis anceps, v. elliptical constricted towards
the produced extremities stauron linear not reaching
the central margin striae very delicate
Prenadier Pond, Island Ponds

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Stauroneis linearis, v. elliptical inflated at centre and
extremities, which are apiculated, stauron linear, reaching
the margin, striae obscure

Genus 22 *Pleurosigma*. W. S.

Includes free, elongated valves convex sigmoid, with a central longitudinal line and nodules at centre and extremities, striated, striae resolvable into dots which are frequently hexagonal.

The sigmoid form of the valve more or less present in all our native species, at once distinguished this genus from its allies. The striae are very closely arranged. Their true character has been in consequence frequently mistaken, some observers having considered these appearances of striae to arise from series of perforations and others from rows of beads or minute elevations, with the latter I have been disposed to coincide but lately I have been led to conclude that the lines arise from internal structure and that the appearance of both perforations and elevations may be produced in the same object by a slight alteration of focus. Nothing is known of the reproduction, properly so called either of this or the three preceding genera multiplication by self division being the only mode of increase hitherto detected.

Pleurosigma attenuatum, V. lanceolate, obtuse
flexure moderate, colour purplish brown. long.
Havricula Hippocampus. *Sporosigma* Hippo-
Sandy Cove. L. Simcoe. Humber Bay Pond

Pleurosigma lacustre. V. lanceolate, ~~acute~~ acute flexure
considerable. colour pale brown
Guadalupe Pond. Humber Bay 13/4/67

Genus 23 *Synedra*, Ehr

Fruskule attached elongate, rectangular, valves linear or lanceolate, plane or convex

In the present genus the fruskules though often found in a free state are at first invariably attached to the larger alga by a cushion like pedicel which in a few cases becomes developed into a more or less distinct stipes. The valves are usually furnished with a central pseudo-nodule and median line, the extremities of which are ~~usual~~ slightly dilated

Section I. Pseudo-nodule obsolete or very minute
fruskule arcuate

Synedra linearis, narrow, linear, slightly attenuated obtuse, *Exiliana linearis* Hass. Hume Bay

Section II Pseudo-nodule ^{definite} annular
Synedra minutissima. V. linear-lanceolate. extremities
obtuse
River Thames London 26/9/64

Section III Pseudo-nodule indefinite

Synedra radians. V. linear lanceolate, extremities somewhat
dilated, obtuse; pustules arranged in a radiate
manner. *Synedra splendens*. Exilana ulnae Haas
Birkley's water trough, common

Synedra capitata. V. linear, dilated toward the acute
extremities into a triangular head
Sandy Cove Lincoln

~~Stria~~ ~~XXX~~ ~~Basal~~ ~~radial~~ ~~tablets~~. praevalent straight

Synedra ulna. ∇ lanceolate - acute, praevalent not radiating
Magara falls common

Synedra longissima. ^{much} ∇ elongated very narrow and gradually
tapering slightly and gradually attenuated towards the inflated and more
extremities. Sunkers Boat-Mouth of Gravel

(Section IV Pseudo-nodule obsolete. praevalent straight)
all marine

Synedra fasciculata. ∇ linear-lanceolate stria reaching
across the valve praevalent in rectangular tablets
River Thames. London.

Genus 24 *Cocconeua*, Ehr

Frustules stipate, cymbiform, valve with submedian line having nodules at centre and extremities

The frustules of this genus differ in no respect from those of *Cymbella*, and are placed apart solely from the presence of a stipes. Whether the development of this accessory be esteemed a generic difference or not, it cannot be denied that it gives a notable physiognomy to the plant, and affords a ready means of discrimination. The stipes seem to be an exudation from the frustules secreted only during the progress of self division

Cocconeua lanceolatum F.V. lanceolate, obtuse. V. elongated, slightly inflated at the centre of the concave margin in stria moniliform

Sandy cove L. Smcoe

Cocconeua parvum F. scarcely direct. F.V. oblong. V. scarcely inflated on concave margin stria moniliform
Humber Bay

Coccomma cistula 70 nearly linear; obtuse; 1/2
much bent; distinctly inflated on the concave
margin, obtuse & not moniliform
River Thames London 26/9/09

Genus 25- Doryphora Rutz

Frustules stipitate. lanceolate or elliptical valve with a median line nodules obsolete

Distinguished from the last by the median line dividing the valve into two symmetrical halves and by the absence of distinct nodules

Genus 26 Gomphonema, Ag.

Frustules stipitate, cuneate, valves variable in outline striated, with a median line and nodules at centre & extre-

The cuneate form of its frustules arising from the unequal development of the connecting membrane distinguishes Gomphonema from the genera which have preceded it and the presence of nodules in its valves from Podosphaea and Ripidophora. The latter genera are also exclusively marine while the species of Gomphonema are all inhabitants of fresh-water streams.

Gomphonema gemmatum F.V. Slightly cuneate, truncate & inflated at the centre and constricted toward each extremity of which the one more distant from the stipes is enlarged and rounded, stria moniliform.
Gretna Pond, Humboldt Bay.

Gomphonema olivaceum. Frustules and stipes forming mucous masses F.V. distinctly cuneate, & slightly alternate upper extremity rounded, lower acute.
Mazara Falls.

Gomphocera cristata 7 V. obovate, crested. V obovate
apiculate. lower extremity acute

Sunken boat. Mouth of Humber

Gomphocera curvata. slipes elongated filamentous and
dichotomous. 7 V. curved. V enlarged toward the upper extremity
which is rounded and inflexed; attenuated toward lower end, this acute

Humber River Weston

Genus 27 *Podosphevia* Shr

Fusicles attached sessile cuneate. valves convex, obovate,
inflected at the larger extremity, striated, traversed by
a longitudinal median line

Genus 28. Rhipidophora, Kutz

Frustules spiculate, cuneate, valves convex, obovate,
inflected at larger extremity, traversed by median line

Genus 29 Licinophora

Fusicles cuneate, stipitate, stipes incrassate, irregularly branched. valves convex, elongated, inflected at large ^{median} extremity and traversed by a longitudinal line

Penas & Meridion

Frustules cuneate, united into a filament, at first attached, at length free and spiral, valves elongate convex, furnished with transverse costae, striated

Meridion circulare. Frustules on front valve cuneate truncate. V. cuneate, rounded at the larger extremity gradually attenuated toward the other, which is slightly inflated and obtuse. costae unequally distant frequently interrupted. striae obscure

Cedar Swamp. Weston. Buckley's water-tough Dundas

Meridion constrictum. V. constricted towards the large extremity otherwise like *M. circulare*
Island Pond

Genus 31 Bacillaria

Fusicles linear straight united into a filament
at first attached at length free coiled inwards Valves
elongate, Reeded with a longitudinal line of puncta
Receding

Genus 32 Himantidium

Inskules, linear, arcuate, united into a filament
at first attached, at length free, direct and slightly arched
valves elongate, linear, arcuate transversely striated

Himantidium arcus F.V. frequently arcuate, valve arcuate,
linear or with dorsum slightly elevated connected toward
the rounded extremities

Penadur Pond

Himantidium pectinale Inskules on F.V. rectangular
straight: V. arcuate linear suddenly attenuate toward
the extremities, which are slightly produced connecting
membrane obscurely striated

Penadur Pond.

Himantidium majus V. arcuate dorsum elevated
extremities inflated rounded

Keupenfelt Bay

Genus 33. *Odontidium*

Frustules quadrangular, direct, united into a filament^{let} at first attached, at length free, valves elliptical or cruciform, costate, costae perivious or interrupted

Odontidium mutabile. Filament usually tenacious; V oral, elliptical or linear acuminate, costae marginal distinct

Sandy core Lake Smere, common, Pond Mills, London

Odontidium tabellaria. Filament fragile, V oral^{inate} + acuminate or lanceolate, costae interrupted, delicate

Sandy core. L. Smere

Odontidium Harrisonii. Filament attached of few frustules, which frequently adhere by their ~~maxims~~ angles only, valve cruciform, angles rounded, costae not reaching the centre of valve, distinct

Sandy core. L. Smere

Odontidium parasiticum. Fusules rarely cohering
attached by their extremities. valves direct, elliptical & acute
Sandy cove L. Sm. com. common.

Odontidium anomalum. Filament tenacious. valves
linear constricted towards the rounded extremities, costae
perforous. Humber Ponds

34. Denticula

Inshules quadrangular or elliptical, direct, rarely uniting in filaments, free, valves elliptical, direct, striated, with perovous or interrupted costae

Denticula tenuis. Inshules linear, truncate, & lanceolate acute. Sandy Cove. Humber Ponds

Denticula inflata Inshule linear or elliptical. & oval with rounded or acute extremities. Humber Ponds

Genus 35. *Fragilaria*

Fusicles linear, straight, united into a filament free or attached, direct. Valves linear or elliptical direct: striated

Fragilaria capucina, valves linear, cuneate at the sub-acute extremities

Sunken Boat, Mouth of Humber, Kempefelt-Bay

Fragilaria virescens, v. linear or elliptical, suddenly attenuated towards the produced extremities which are obtuse
Grenadier Pond Arm Bay

~~*Fragilaria striatula*, Valve linear, somewhat attenuated toward the blunt extremities~~

Prms 37. *Achnanthes*

Frustules geniculate, united into a filament which is stipitate or attached, valvate, unsymmetrical the lower with a longitudinal & transverse line & central & terminal nodules, the upper with longitudinal line only

Achnanthes exilis, Filaments from two to fifty frustules. Linear-lanceolate with obtuse extremities occasionally somewhat produced, stria faint, shapes variable in length, subgregarious or solitary
Cedar Swamp. Weston.

Genus 38 *Actinauthidium* n. sp.

Frustules geniculate, rarely united into a filament
free, valves striated, unsymmetrical

Genus 41. Tetracyclus 88. 11111111

Filament compressed with a central inflation, free
proclules annulate indefinite, annuli plane, septa
alternati, equal, valves inflated at centre, cruciform, ^{rotate}

Pinus 42 Dratoma

muscles oblong, adhering by their opposite & alternate
or more rarely by their adjacent angles into a zigzag
chain. valves elliptical or linear

Dratoma vulgare Valve elliptical suddenly attenuate
towards the obtuse extremities, costate, costa perivious
somewhat irregular

Humber, Duddas, causal ponds

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Tabellaria

Genus 44

Frustules oblong, cohering in ^{to} zigzag chains, acuminate
septa alternate entire, direct, valves linear inflated
at centro & extremities, striated

Tabellaria fenestra. Frustules definite septa two
from each margin, equal, inflations of the valve
nearly equal in width stria indistinct

Tabellaria flocculosa Frustules indefinite, septa from
3 & 4 from each margin, slightly unequal. Valve
with central inflation the largest; stria indistinct
Sander from London

Genus 49 Melosira

Filament cylindrical of numerous pustules attached or free, pustules spherical or cylindrical, often geminate valves hemispherical or subcylindrical, more or less convex at junction surfaces

Melosira Various ordinary pustules cylindrical sporangial at first globular, at length cylindrical valves cylindrical with truncated extremities
Barrel on Hamilton road below toll gate

Genus 50. *Orthosira*

Filament cylindrical, of numerous pustules continuous attached or free, pustules and valves cylindrical, junction-surfaces plane, line of junction usually spinose or denticulate

Orthosira orichalcea Filaments direct-valves punctate, line of junction with more or less distinct sub-distant duplications, junction-surfaces smooth
Sandy covered like *frumore*

Orthosira Spumosa. Filaments curved, often zigzag from the partial cohesion of their junction surfaces valves truncate marked with monileform striae and three conspicuous subcentral puncta, sporange pustules globular
Burlington Bay

Genus 54 Eucyoneura

Frond filamentous, tubular sparingly divided,
pustules cyrtolobiform valves convex striated striae mon...

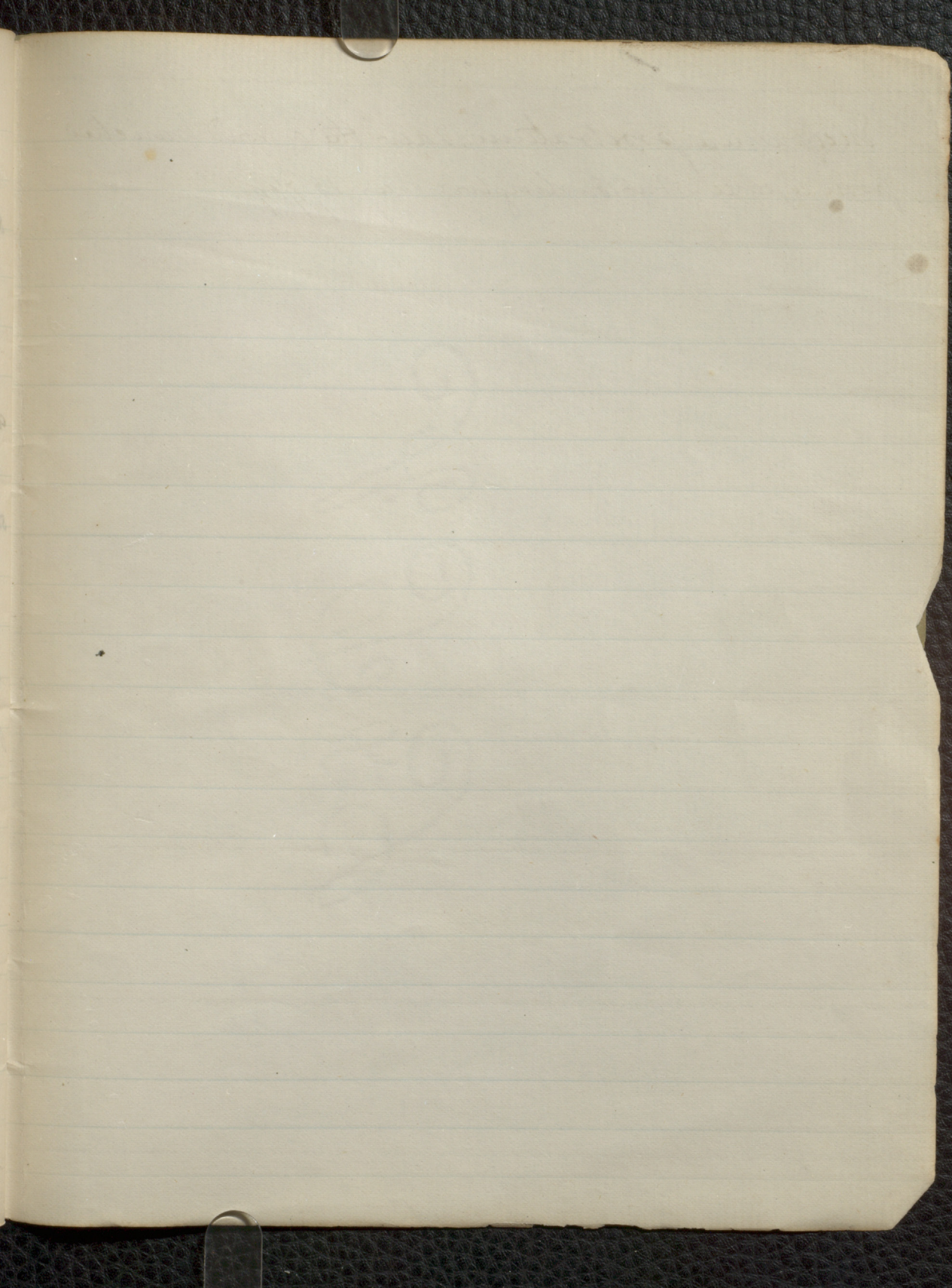
Eucyoneura prostratum Frond nearly simple, erect
or prostrate, extremities of valves rounded
One or both extremities produced

Colleloneuma Genus 5-5-

Fond simple or divided filiform or globose, pustules
sigmoid or direct, naviculoid, files containing one
or more rows of scattered pustules

Colleloneuma vulgare Fond filiform, occasionally
divided, gradually acuminate, containing one or two
rows of pustules regular file. Elliptical-lanceolate
slightly contracted towards the obtuse extremities
Dundee. Ponds

Colleloneuma neglectum. Filament slightly divided
obtuse containing numerous and closely packed
pustules. Elliptical-lanceolate, extremities obtuse
Humber Bay



Encyonema prostratum. Saw the a pond branched
from a peve & at Burlington Bay 13/7/09

Amundsen

